

# MEMORANDUM


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**SUBJECT:** Guidance Memo No. 99-2006  
DEQ Storage Tank Program Quality Management Plan

**TO:** Regional Directors

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The Quality Management System developed for the DEQ Storage Tank Program is intended to ensure that environmental data collected by staff and contractors hired by the Storage Tank Program meet data quality requirements established by the Program. The primary goal of the Quality Management System is to provide data of documented and known quality that are capable of supporting specific decisions made by staff and managers within the Storage tank program. The Quality Management Plan provides a framework within which the DEQ Storage Tank Program will monitor data collected by staff and contractors performing work for DEQ and will ensure that the data collected is of sufficient quality to support the required decisions.

This document provides procedural guidance to the Storage Tank Program managers and staff. This document is for guidance only. It does not establish or affect legal rights or obligations. It does not establish a binding norm and is not finally determinative of the issues addressed. Agency decisions in any particular case will be made by applying the State Water Control Law and the implementation regulations on the basis of the site specific facts.

If you should have any questions, please contact James Barnett or Fred Cunningham.

LGL/jb

# **DEQ Storage Tank Program**

## **Quality Management Plan**

## **Quality Management Plan - DEQ Storage Tank Program**

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## **1.0 QUALITY MANAGEMENT PLAN - DEQ STORAGE TANK PROGRAM**

The Storage Tank Program within the Department of Environmental Quality (DEQ) is responsible for overseeing compliance with the Commonwealth's underground and aboveground storage tank regulations, the clean up of oil spills from unregulated USTs and ASTs, and the investigation and clean up of regulated substances released from regulated USTs. Managers and staff within the Storage Tank program make daily decisions about risks posed to humans and the environment by releases of petroleum or other regulated substances. Decisions made by staff must be based on data that is accurate and representative of actual site conditions.

Data quality is of critical importance for staff and management within the DEQ Storage Tank Program. Environmental data is used by DEQ to determine if a release has occurred and further investigation and characterization of a site is needed. Data collected during site characterization is used to evaluate risks posed by the release and determine remedial endpoints. DEQ staff also rely on analytical data from water supply wells to determine if alternate water supplies or a water treatment system must be provided to impacted parties.

### **1.1 Objectives and Goals of the Quality Management System**

The Quality Management System used by the DEQ Storage Tank Program is designed to ensure that environmental data collected for this program meet the quality requirements established by the Program. The primary goal of the Quality Management System is to provide data of documented and known quality that are capable of supporting specific decisions made by staff and managers within the Storage Tank Program. The Quality Management System addresses actions or decisions based upon data collected by DEQ staff, contractors performing work for DEQ, or as a result of monitoring or measurement activities supported through Federal Grants. The goal of providing data of known quality will be achieved by providing appropriate resources to all persons within the Storage Tank Program and ensuring that proper procedures are followed throughout the process of planning, collecting, analyzing, and interpreting environmental data.

The Quality Management System will include all activities or projects where environmental data is collected by DEQ staff or by contractors performing work directly for DEQ. Management and staff within the Storage Tank Program will determine the objective(s) for generating new environmental data prior to data collection. Appropriate resources and quality assurance and control methods can then be applied to ensure that the data collected are of sufficient quality to support the intended uses of the data.

The DEQ Storage Tank Program will develop and implement a Quality Assurance Project Plan or Quality Assurance Narrative Statements for each environmental data collection activity performed by Storage Tank Program staff. These Quality Assurance Project Plans and Narrative Statements will describe the procedures that will be followed to assure that the data collected are of sufficient quality to support the intended use(s) of that data. Quality Assurance Project Plans and Narrative Statements will,

at a minimum, be reviewed and approved by appropriate technical staff, management, and the Storage Tank Program Quality Assurance Manager prior to the start of any data collection effort.

Environmental data used by Storage Tank Program staff and management may be generated by contractors hired by DEQ or through interagency agreements. The Storage Tank Program will ensure that Quality Assurance requirements are included in the appropriate agreement documents and that these external entities follow acceptable Quality Assurance and Quality Control practices.

## **1.2 Scope of the Quality Management Plan**

This Quality Management Plan applies to all activities performed by Storage Tank Program staff, management, or contractors that generate environmental data that is subsequently used to make decisions or support actions. At the present time, the only statewide projects that involve environmental data collection are the Alternate Water Supply (AWS) Project and the State Lead Project. Other projects involving the collection of environmental data by Storage Tank Program staff and contractors performing work for this Program may be incorporated into the Quality Management System as those projects are undertaken.

## **1.3 Definitions**

*Environmental Data* - information or measurements resulting from any field data collection activity, laboratory analyses, or models used to evaluate chemical, physical, or biological conditions at a site

*Quality Management System* - a structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products, and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization.

*Quality Assurance* - an integrated system of management activities to ensure that a process, item, or service is of the type and quality needed and expected by the user.

*Quality Assurance Narrative Statement* - A quality assurance document that describes the quality assurance and quality control procedures that will be applied to a small project.

*Quality Control* - the overall system or technical activities that compares performance against defined standards or criteria to verify that stated requirements are met.

*Quality Management* - the process by which a quality system is planned, implemented, and assessed.

*Quality Management Plan* - a formal document that describes the quality system in terms of the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, and assessing all activities conducted.

*Quality Assurance Project Plans* - planning documents that explain how environmental data collection activities are planned, implemented, documented, and assessed during the life cycle of a specific program, project, or task.

*Management Systems Reviews* - a management tool to identify strengths and areas needing improvement in quality assessments.

*Special Projects* - (1) projects within the Storage Tank Program that are regional or site specific rather than statewide in scope or (2) those projects that will take place over a limited period of time as opposed to being ongoing projects or programs.

## **2.0 MANAGEMENT AND ORGANIZATION**

### **2.1 Organizational Structure**

The Storage Tank Program includes staff and management within each of the six DEQ regional offices as well as staff and management within the Office of Spill Response and Remediation (OSRR) in the DEQ Central Office. The Storage Tank Program Manager in each regional office reports to the Regional Director. The Regional Director reports directly to the DEQ Director.

Although the Federal UST Regulation is covered under RCRA, a waste regulation, laws related to storage tanks and oils spills within the Commonwealth are found within State Water Control Law. The Office of Spill Response and Remediation is a component of the DEQ Water Programs division. The Director of OSRR reports to the Director of Water Programs. The Director of Water Programs reports to the DEQ Director.

The complete DEQ Organizational Chart is included as Appendix B.

### **2.2 Storage Tank Program Functions**

The Storage Tank Program is responsible for overseeing compliance with Virginia's UST and AST Regulations. Staff within the Storage Tank Program oversee the investigation and clean up of releases of regulated substances from regulated USTs and the clean up of oil from all storage tanks. The management of individual leaking storage tank cases is provided by staff in the Regional Offices. Regional staff also perform inspections to determine if ASTs and/or USTs have been upgraded to meet the regulatory requirements.

The Office of Spill Response and Remediation in the DEQ Central Office is responsible for managing contracts for the Program, establishing Program policies and procedures, overseeing reimbursements from the Virginia Petroleum Storage Tank Fund, and providing guidance to the regional staff as needed.

One of the functions of the Storage Tank Program is to provide persons with potable water when water supply wells have been impacted by petroleum. Storage Tank Program staff in both the Regional Offices and in OSRR investigate reports of petroleum contaminated water supplies. This program also provides carbon filtration units or alternate water supplies (AWS) to persons whose water supply wells have been impacted by petroleum constituents. Management of the carbon filtration contract and the AWS program is provided by the AWS Manager in OSRR.

The Commonwealth of Virginia maintains a Petroleum Storage Tank Fund for assisting responsible persons with the costs of cleaning up petroleum releases. Staff in both the Regional Offices and OSRR have roles in the reimbursement program. Regional staff functioning as Case Managers are responsible for working with tank owners/operators and determining the work that needs to be performed in order to investigate and remediate a release. OSRR staff ensure that reimbursement claims are reviewed and that



eligible responsible persons are reimbursed for corrective actions performed.

DEQ must periodically deal with petroleum releases where the tank owner/operator is unknown or that entity is unable or unwilling to proceed with site characterization and remediation. In these instances, DEQ will take over and the release will be investigated and cleaned up under the State Lead Program. Investigations and remedial work performed under the State Lead Program are performed by a "State Lead Contractor" that is hired by the Storage Tank Program. Both regional and OSRR staff have roles in the State Lead Process. Individual cases are managed at the regional level. The State Lead Contract is managed by OSRR.

## **2.3 Activities and Programs Supported by the Quality Management System**

The Quality Management System will be used to support all data collection activities performed by DEQ Storage Tank Program staff or contractors performing work for the Program. The Quality Management System will also encompass laboratory analyses and physical, chemical, and/or biological modeling performed on this environmental data.

### **2.3.1 Environmental Data Collected by DEQ Staff**

Decisions made by staff and management within the DEQ Storage Tank Program are often based upon considerable amounts of data. Relatively little of this data, however, is derived or collected by DEQ. The situation in which Storage Tank Program staff most often collect environmental data is when DEQ receives a report of petroleum or other regulated substance in a water supply well. Reports of petroleum in water supply wells are investigated by staff from the Storage Tank Program. As part of the investigation, staff may collect samples from the water supply system and submit these samples to the Virginia Department of General Services, Division of Consolidated Laboratory Services for analysis. Staff may also request that the carbon filtration unit contractor hired by DEQ collect samples from the potentially impacted water supply. One Quality Assurance Project Plan will be developed to address all AWS sites that are part of the Storage Tank Program.

With the exception of investigating reports of contaminated water supplies, DEQ Storage Tank Program staff rarely collect environmental data. When special projects require data collection (i.e. situations other than water supply investigations), DEQ Storage Tank Program staff and management will develop a Quality Assurance Project Plan or a Quality Assurance Narrative Statement for that special project.

### **2.3.2 Environmental Data Collected by Contractors**

Contractors providing services to DEQ collect environmental data that is used by the Storage Tank Program staff and management in the decision making process. The primary contractors providing services to the Storage Tank Program are the Carbon Filtration Unit (CFU) contractor and the State Lead Contractor.

The CFU contractor is an entity that has been hired by DEQ to provide water treatment systems for impacted water supplies. This contractor routinely collects water samples from the water supplies that it services and has those samples analyzed by a private laboratory. Information generated from these samples is used by the CFU contractor to design and maintain individual water treatment units. DEQ Storage Tank Program staff use this information to determine: (1) if a water treatment system is needed at a site; (2) what type(s) of sources may be responsible for the contamination; (3) if the water treatment system installed at a site is protecting human health by removing the constituents of concern; and (4) if a treatment system may be removed from a water supply.

The State Lead contractor is an entity that has been hired by DEQ to investigate, characterize, and clean up releases of petroleum where the responsible person is: (1) unwilling or unable to characterize and/or clean up the release; or (2) unknown.

Quality Assurance is not, at present, a condition of the CFU or State Lead Contracts. In order to address this deficiency, Quality Assurance for the Carbon Filtration portion of the Program will be incorporated into the Quality Assurance Project Plan for the Alternate Water Supply Program. The State Lead Contract Manager will request that the State Lead Contractor develop one Quality Assurance and Quality Control document that will apply to all State Lead sites. This QA/QC document will then be reviewed by the State Lead Contract Manager and the Storage Tank Program Quality Assurance Manager.

## **2.4 QA/QC Responsibilities**

All persons in the Storage Tank Program who are directly or indirectly involved with the collection of environmental data are responsible for ensuring the quality of that data. This may include Case Managers, line managers or supervisors, and other staff specifically assigned to perform Quality Assurance functions.

The Director of OSRR and Storage Tank Program Managers for each of the six regions have the overall responsibility for the Quality Management System used within the Storage Tank Program. These persons must ensure that:

1. The Quality Management Plan for the Storage Tank Program is developed, reviewed, effectively implemented, and updated as necessary.
2. Adequate resources are provided to support the Quality Assurance program responsibilities.
3. All environmental data collection activities performed by DEQ staff or contractors working directly for DEQ are covered by appropriate quality assurance documentation.
4. Quality Assurance Project Plans or Narrative Statements are developed, reviewed, and implemented for all special projects where environmental data is generated by Storage Tank Program staff or contractors performing work for the Program.
5. Deficiencies in the quality assurance process are identified and corrected.
6. Program or project specific quality assurance related training needs are identified and provided.

The Director of OSRR is also responsible for:

1. Designating a Quality Assurance coordinator or manager for the Storage Tank Program; and
2. Ensuring that compliance with the quality assurance requirements for the program is evaluated.

The Storage Tank Program Quality Assurance Manager is responsible for developing, maintaining, and updating all program wide quality assurance documents. The Quality Assurance Manager must also:

1. distribute quality assurance documents, policies, and procedures;
2. evaluate compliance with Storage Tank Program quality assurance requirements;
3. identify deficiencies in quality assurance processes and identify actions needed to correct those deficiencies; and
4. identify training needs and report these needs to the Director of OSRR and the Regional Storage Tank Program Managers.

Regional and Central Office staff who generate environmental data are integral components in the Quality Management System. Storage Tank Program staff who generate data are responsible for:

1. reviewing the pertinent quality assurance documents and standard operating procedures prior to collecting environmental data;
2. identifying data collection activities for which the Storage Tank Program has not developed quality assurance or standard operating procedures and informing the Regional Storage Tank Program Manager or OSRR Director of same;
3. following quality assurance procedures developed for their specific data collection activity. When data collection procedures used deviate from standard procedures, staff must document the change in procedure and explain the reason(s) for the change in procedure.
4. informing the Regional Storage Tank Program Manager or the Director of OSRR of training needs.
5. working with the Storage Tank Program Quality Assurance Manager to develop a Quality Assurance Narrative Statement for special projects that involve the collection of environmental data.

The DEQ Quality Assurance Officer will have a major role in the corrective action part of the Quality Management System. The QA Officer is outside of the Storage Tank Program chain of command and is expected to add a level of objectivity to QA reviews and audits within the Program. The DEQ Quality Assurance Officer should, at a minimum:

1. review major revisions to the Quality Management Plan and Quality Assurance Project Plans and provide input and suggestions on the draft revisions;
2. audit or review audits of Quality Assurance procedures used by the Storage Tank Program.

## **2.5 Internal Communication and Coordination**

To be effectively implemented, all staff and managers within the Storage Tank Program must understand and participate in implementing the Quality Management System. The Storage Tank Program Quality

Assurance Manager is responsible for drafting or reviewing quality assurance documents that will be used by the Program on a statewide level. Statewide quality assurance documents include the Quality Management Plan for the Storage Tank Program, the Quality Assurance Project Plan for the AWS Program, and the Quality Assurance Project Plan for the State Lead Program (to be developed by the State Lead Contractor). After drafting quality assurance documents, the Storage Tank Program Quality Assurance Manager will send copies of the document to agency personnel responsible for ensuring that the quality assurance process is followed. The Quality Management Plan is a management tool and will be reviewed by senior and line managers in both OSRR and the Regional Offices. Quality Assurance Project Plans involve management and line staff in both OSRR and the Regional Offices and these documents will be reviewed by managers within both OSRR and the Regional Offices as well as technical staff who can provide expertise and input on the proposed technical components of the project. Staff and managers reviewing quality assurance documents will provide comments to the Storage Tank Program Quality Assurance Manager who will consider these comments and suggestions when completing the quality assurance document. Revisions and updates to existing quality assurance procedures and policies will be provided to the same persons who reviewed the original document for review prior to completion of those policies and/or procedures.

Storage Tank Program functions are performed by DEQ staff and management in both the Regional Offices and in the Office of Spill Response and Remediation. Regional Offices within the DEQ have much autonomy and programs within the regions report to the Regional Director and then to the DEQ Director. The Office of Spill Response and Remediation, with input from the Regional Offices, develops policies and procedures for the Storage Tank Program. OSRR also manages statewide contracts for the program such as the CFU contract and the State Lead Contract and ensures consistency within the Storage Tank Program. OSRR is located within the Division of Water Programs and reports to the Director of Water Programs. The Director of Water Programs reports to the DEQ Director. Figure 1 illustrates the lines of formal communication that exist within the DEQ Storage Tank Program.

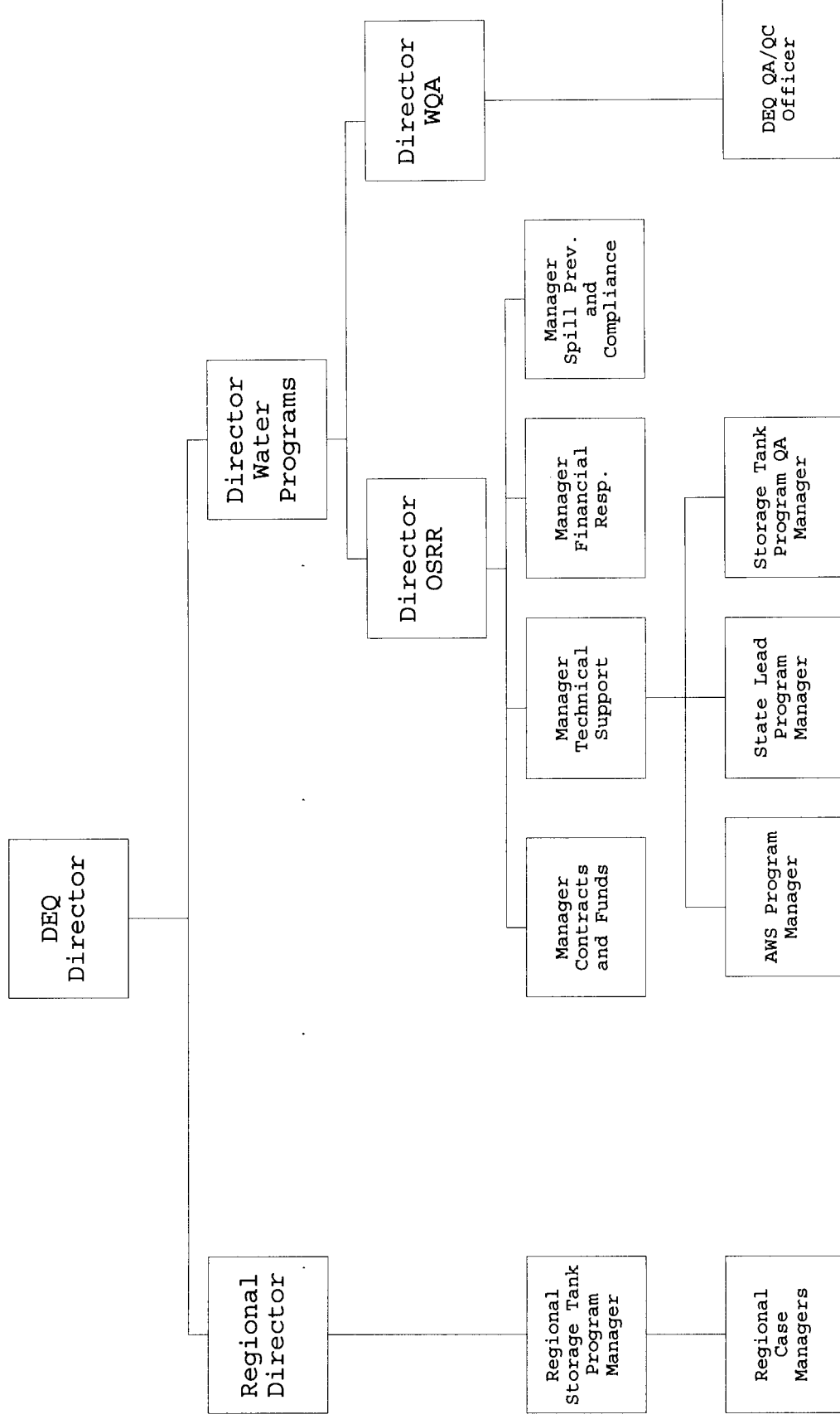
The lines of formal communication illustrated on Figure 1 and in the complete organizational chart (Appendix B) fail to show many of the day to day interactions that occur within the program. As a matter of course, Storage Tank Program managers within the Regional Offices and OSRR Management communicate directly and work together to establish policies and procedures for the Program. Figure 2 represents the quality assurance related lines of functional communication that exist within the Storage Tank Program.

## **2.6 Personnel Qualification and Training**

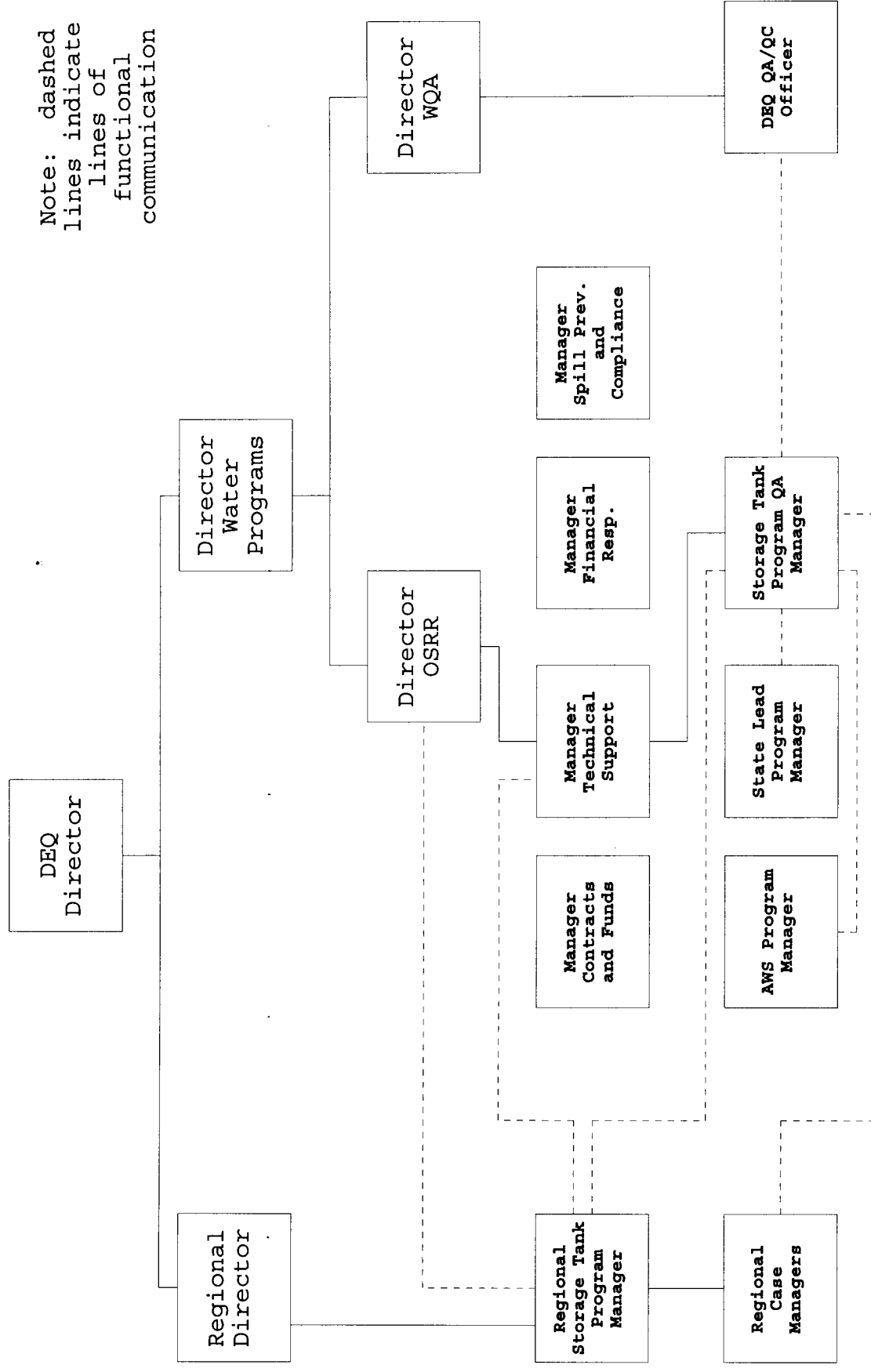
In order to effectively implement any Quality Management system, managers and staff must have the appropriate qualifications and training to complete the necessary tasks. Personnel qualification is an issue that is dealt with primarily through the hiring process. Managers hiring staff list the knowledge, skills, and abilities (KSAs) that a person must possess in order to perform the required work. The KSAs used to hire staff meet minimum requirements to develop and implement project plans.

Training needs are assessed on the project level through the Quality Assurance Project Plan. The Storage

Figure 1. Formal Communications



# Figure 2. Storage Tank Program Functional Communications



Tank Program Quality Assurance Manager, Storage Tank Program managers, and selected technical staff who will be working on the project will determine what type(s) of training is/are needed in order for the Storage Tank Program to meet its quality objectives for the project.

After the Project Plan is implemented, the Storage Tank Program Quality Assurance Manager, Storage Tank Program managers, and staff serving as project managers for that project will, as part of the quality improvement program, continue to evaluate the quality system as it relates to that project. Each of these persons is encouraged to seek ways to improve the program and this includes suggesting training that may help the DEQ Storage Tank Program to more efficiently meet its objectives.

## **2.7 Documents and Records**

Developing and updating quality assurance documents is a continuous process within the DEQ Storage Tank Program. The Storage Tank Program Quality Assurance Manager is responsible for ensuring that the Quality Management Plan and the Quality Assurance Project Plans for the DEQ Storage Tank Program are current. When one of the Quality Assurance documents becomes outdated, the Quality Assurance Manager is responsible for overseeing the process of updating the pertinent document. Originals of each program wide quality assurance document generated by or for the DEQ Storage Tank Program will be housed in the administrative files at OSRR. Each Regional Office will be provided with at least one copy of the Quality Management Plan for the Storage Tank Program. Quality Assurance Project Plans for statewide projects will also be provided to each Regional Office.

Given the nature of present responsibilities of the Storage Tank Program, the development of site specific quality assurance documents is an activity that will occur on an infrequent basis. Site specific quality assurance documents such as Quality Assurance Narrative Statements developed for special projects that will occur within only one region will be housed in that Regional Office with a copy in OSRR. If a Quality Assurance Narrative Statement will be used by more than one Regional Office, the original will be placed in OSRR and each Region involved with the project will be provided with at least one copy of the document for their files.

Hard copies of site specific data or other information including field sampling notes, chain of custody records, and laboratory analytical sheets will be maintained in the file of record for that specific site or project. The exact location of the file of record is project specific and, therefore, will be noted in the pertinent Quality Assurance Project Plan or Quality Assurance Narrative Statement.

## **2.8 Computer Hardware and Software**

Environmental data collected by the Storage Tank Program is site specific in nature and maintained in individual case files rather than placed in statewide or regional databases. At the present time, the Storage Tank Program has no specific needs for monitoring or assessing computer hardware and software as part of the Quality System.

### **3.0 QUALITY MANAGEMENT PLANNING PROCESS**

The major goal of the Quality Management System used by the DEQ Storage Tank Program is to ensure that environmental data collected for this program are of appropriate quality to support the intended use(s) of that data. In order to meet this goal, quality planning must occur at both the program level and the project level.

#### **3.1 Program Level Planning**

Ultimately, program level goals and objectives provide the foundation for all planning efforts. Operational Plans for the Storage Tank Program establish program wide goals and objectives. Operational Plans for the Storage Tank Program are generally updated once every year

The Quality Management Plan for the Storage Tank Program and any updates to this plan are based upon the Operational Plans for the Program. The Quality Management Plan for the Program and any revision to this plan are developed and approved by the Storage Tank Program Quality Assurance Manager, senior managers, and line managers within the Program. Managers within the Storage Tank Program are ultimately responsible for ensuring that this Program meets its established objectives. In order to meet Program wide objectives, all managers within the Program must have input into program policies and procedures and then implement those policies and procedures..

#### **3.2 Project Level Planning**

A project may be defined as an organized set of activities within a program. Quality Assurance Project Plans and Quality Assurance Narrative Statements are the mechanisms for ensuring adequate data quality at the project level. Quality Assurance Project Plans will be developed for each statewide project within the Storage Tank Program that involves the collection of environmental data. Each Project Plan will specify the procedures that the Storage Tank Program will use to ensure the quality of environmental data collected as part of that project. Quality Assurance Project Plans developed by the Storage Tank Program will:

For new statewide projects, the first step in developing a Quality Assurance Project Plan is to identify the need for a plan for that particular project. Once this need is identified, the Quality Assurance Manager will develop a draft Quality Assurance Project Plan. This draft plan will then be sent to OSRR management, Regional Storage Tank Program managers, and selected technical staff in both the Regional Offices and OSRR. If data will be collected entirely, or in part by OSRR staff, these persons will be included in the review process.

1. identify the goals and objectives that DEQ must attain with that program or project



2. identify the participants within the program or project. These participants are the individuals who have responsibilities for ensuring the quality of the data collected as part of the program or project.
3. specify the data quality objective(s) that must be attained for that project.
4. reference standard operating procedures
5. describe plan for providing necessary training
6. describe procedure for evaluating effectiveness of Quality Assurance Plan
7. describe procedure for correcting deficiencies in Quality Assurance Project Plan

Environmental data collection operations vary widely in their scope and complexity. Quality Assurance Project Plans, therefore, need to reflect the scope of individual projects. The DEQ Storage Tank Program does not often undertake special projects that involve the collection of environmental data. Quality assurance and quality control procedures for small projects will be described within a Quality Assurance Narrative Statement for that project.

Primary responsibility for writing Quality Assurance Narrative Statements will rest with the Project Manager. The Project Manager will work with the Storage Tank Program Quality Assurance Manager to ensure that the necessary elements are incorporated into the Narrative Statement. Narrative Statements are project specific, however, most will contain at least the following:

1. a project description including the purpose of the work;
2. a statement of the project objectives;
3. a description of the data quality objectives;
4. sampling and analytical design of project. This includes sampling and analytical methods to be used, calibration requirements for any instruments used, and performance criteria that must be met.
5. the process to be used for sample handling, custody, identification, preservation, transportation, and storage;
6. a project schedule including starting and ending dates, key project milestones, etc.;
7. a listing of key project staff and their roles and responsibilities; and
8. procedures used for data validation and verification.

Quality Assurance Narrative Statements for special projects must, at a minimum, be approved by the Project Manager, Storage Tank Program Quality Assurance Manager, and the Storage Tank Program Manager of the Region within which the project will be implemented. If the project will be managed by OSRR, the Project Manager, Quality Assurance Manager, and the Director of OSRR must approve the Narrative Statement.

## **4.0 IMPLEMENTATION OF THE QUALITY MANAGEMENT SYSTEM**

The Quality Management System within the DEQ Storage Tank Program will be implemented at the management level and the project level. At the management level, the Quality Management System will be implemented through the procedures and schedules developed as part of the Quality Management Plan. The Quality Management Plan establishes the policies and procedures by which DEQ managers within the Storage Tank Program will meet the quality objectives of the Storage Tank Program as a whole.

The DEQ Storage Tank Program is responsible for administering or overseeing multiple projects or subprograms. At the most basic level, the Quality Management System will be implemented through the procedures developed as part of individual Quality Assurance Project Plans. Quality Assurance Project Plans establish the procedures for implementing individual projects or subprograms within the Storage Tank Program. All persons involved in implementing a project will be provided with an opportunity to comment on the Quality Assurance Project Plan for that project before the project plan is implemented. Once implemented, all DEQ personnel working on the project and contractors hired by DEQ are responsible for following the procedures outlined in the project plan.

### **4.1 Implementation of the Management Plan**

Functions within the Storage Tank Program are carried out by management and staff within both OSRR and the DEQ Regional Offices. Senior and line managers within the Regional Offices and OSRR share responsibility for ensuring that the goals and objectives of the Storage Tank Program are attained. In order to meet program objectives, management must provide appropriate resources in terms of personnel, equipment, and training. Senior and line managers within the Storage Tank Program are also responsible for prioritizing work and ensuring effective communication and coordination between subunits within the program

### **4.2 Project Plan Implementation**

Projects involving the collection of environmental data may involve staff and management from both OSRR and the Regional Offices. Environmental data collected by Storage Tank Program staff and contractors performing work for this program will be collected in accordance with an approved Quality Assurance Project Plan. The Storage Tank Program Quality Assurance Manager and the AWS Program Manager are jointly responsible for developing the Quality Assurance Project Plan for the AWS Program. The Storage Tank Program will require the State Lead Contractor to develop a Quality Assurance Project Plan that will apply at all State Lead sites. This Plan must then be reviewed and approved by the State Lead Program Manager and the Storage Tank Program Quality Assurance Manager.

Procedures for tasks that are routinely performed as part of one or more projects may be standardized and documented as Standard Operating Procedures. Standard Operating Procedures, once established, may be cited in the appropriate Quality Assurance documents and contract proposals. This practice will promote consistent quality for these tasks and save staff time and resources by avoiding the need to write out the same procedure in each quality assurance document. Tasks for which Standard Operating Procedures may be written include:

1. Sampling and analytical procedures;
2. Sample collection methods and devices, containers, holding times, handling and transportation;
3. Documentation and chain-of-custody;
4. Calibration and maintenance of equipment; and
5. Safety procedures.

### **4.3 Schedule of Implementation**

The Quality Management Plan and all Quality Assurance Project Plans will be initially reviewed by DEQ Storage Tank Program Managers and staff as appropriate. The Quality Management Plan and individual project plans will be forwarded to EPA following review by DEQ. The Quality Management and individual project plans will be implemented upon approval from both DEQ management and EPA Region III.

## **5.0 QUALITY IMPROVEMENT**

The quality improvement component of the Quality Management System includes procedures for assessing existing QA/QC procedures, addressing deficiencies in current QA/QC practices, and improving the existing system to more effectively and efficiently meet the objectives of the Storage Tank Program. The DEQ will use internal management and technical reviews, performance evaluations, and audits to ensure that QA procedures are implemented. Independent reviews by the DEQ Quality Assurance Officer also will be used to evaluate QA procedures within the Storage Tank Program.

### **5.1 Review of the Storage Tank Program Quality Management Plan**

Quality Assurance procedures and practices described in this Quality Management Plan will be assessed annually and revised or updated as needed. The Storage Tank Program Quality Assurance Manager is responsible for coordinating the assessment of the management plan. This includes arranging for appropriate personnel to assist with the review and ensuring that the appropriate changes are incorporated into the Quality Management Plan. Minor changes to the Quality Management Plan will be reported to EPA through an annual QA report. Major changes to the Quality Management Plan will be submitted to EPA Region III for comment.

### **5.2 Management System Reviews**

A management system review is an independent evaluation of an organization's management practices as they relate to quality assurance. Management system reviews evaluate the effectiveness of management controls in achieving and assuring data quality, the adequacy of resources and personnel devoted to quality assurance functions, the effectiveness of training and assessments, and the applicability of data quality requirements. Management system reviews identify areas where quality assurance improvement is needed and also identify noteworthy accomplishments.

Management system reviews for the DEQ Storage Tank Program are conducted by the DEQ Quality Assurance Officer. Management system reviews will examine the following elements, as applicable:

1. The overall effectiveness of the QA management system
2. Procedures for developing Data Quality Objectives
3. Procedures for developing and approving Quality Assurance Project Plans
4. The effectiveness of existing Quality Assurance Project Plans
5. Procedures, criteria, and schedules for conducting audits
6. Responsibilities and authorities of managers and quality assurance personnel for implementing the quality assurance program
7. The level of financial and other resources committed to implementing the quality assurance program

8. Monitoring corrective actions taken to address deficiencies or other problems in the quality assurance program.

### **5.3 Technical Assessments**

Technical assessments are conducted to assess the sampling and analytical quality control procedures used to generate environmental data. The DEQ Storage Tank Program will use technical assessments to evaluate procedures used by staff and contractors. Technical assessments may include the evaluation of equipment used by staff and contractors, calibration of equipment, personnel qualifications and training, record keeping and documentation, and data management. The Quality Assurance Manager for the Storage Tank Program is responsible for overseeing Technical Assessments. Project managers and technical staff will also be involved in the technical assessment process. The Storage Tank Program Quality Assurance Manager may also request that other individuals such as the DEQ Quality Assurance Officer be involved in the assessment process.

### **5.4 Data Quality Assessments**

A Data Quality Assessment refers to the process used to determine if the quality of a given data set is adequate for its intended use. Data Quality assessments can be performed on all or selected projects involving data collection. The purpose of this type of evaluation is to determine whether the decision maker(s) may use the data for making the necessary decision.

Data Quality Assessments involve the comparison of the collected data with the Data Quality Objectives for the project. The intended use of the data is specified in the Quality Assurance Project Plan for each specific project.

Data quality audits will be performed to evaluate the documentation of the quality of data generated for individual projects. The audit will primarily evaluate the completeness of field documentation and analytical procedures and quality control results. This audit process essentially involves tracing the paper trail that accompanies data from the time of sample collection to the time that the data is used to make decisions.

The Storage Tank Program Quality Assurance Manager is responsible for coordinating Data Quality Assessments. Selected Technical Staff and managers throughout the Storage Tank Program will be responsible for assisting the Quality Assurance Manager with this assessment.

### **5.5 Corrective Action Procedure**

The Quality Management Plan for the Storage Tank Program will be reviewed annually to determine if changes to the Quality Management System are needed. The goals and objectives outlined in the Quality

Management Plan will be compared with program goals outlined in the Operational Plan for the Program to ensure that they are compatible. This annual review will include a summary management system review to ensure that management functions are supporting the Quality Assurance process for the Program. Detailed Management System reviews will be included in the annual Quality Assurance Review if a major organizational change has taken place during the previous year.

Quality Assurance Project Plans also will be reviewed on an annual basis. Procedures used to update Quality Assurance procedures at the project level will be outlined in the pertinent Quality Assurance Project Plan.

## **5.6 Schedule**

The Storage Tank Program Operational Plan sets the annual objectives and schedule for the Program. Program goals and objectives outlined in the Quality Management Plan are based upon Program objectives listed in the Operational Plan. The Operational Plan must, therefore, be in place prior to the development and implementation of a Program Plan.

The Operational Plan for the 1999 calendar year was completed in November 1998. The USEPA, Region III approved the draft Quality Management Plan for the DEQ Storage Tank Program in January 1999. This Quality Management Plan reflects the comments of Region III, the DEQ Quality Assurance Officer, and Management within the DEQ Storage Tank Program.

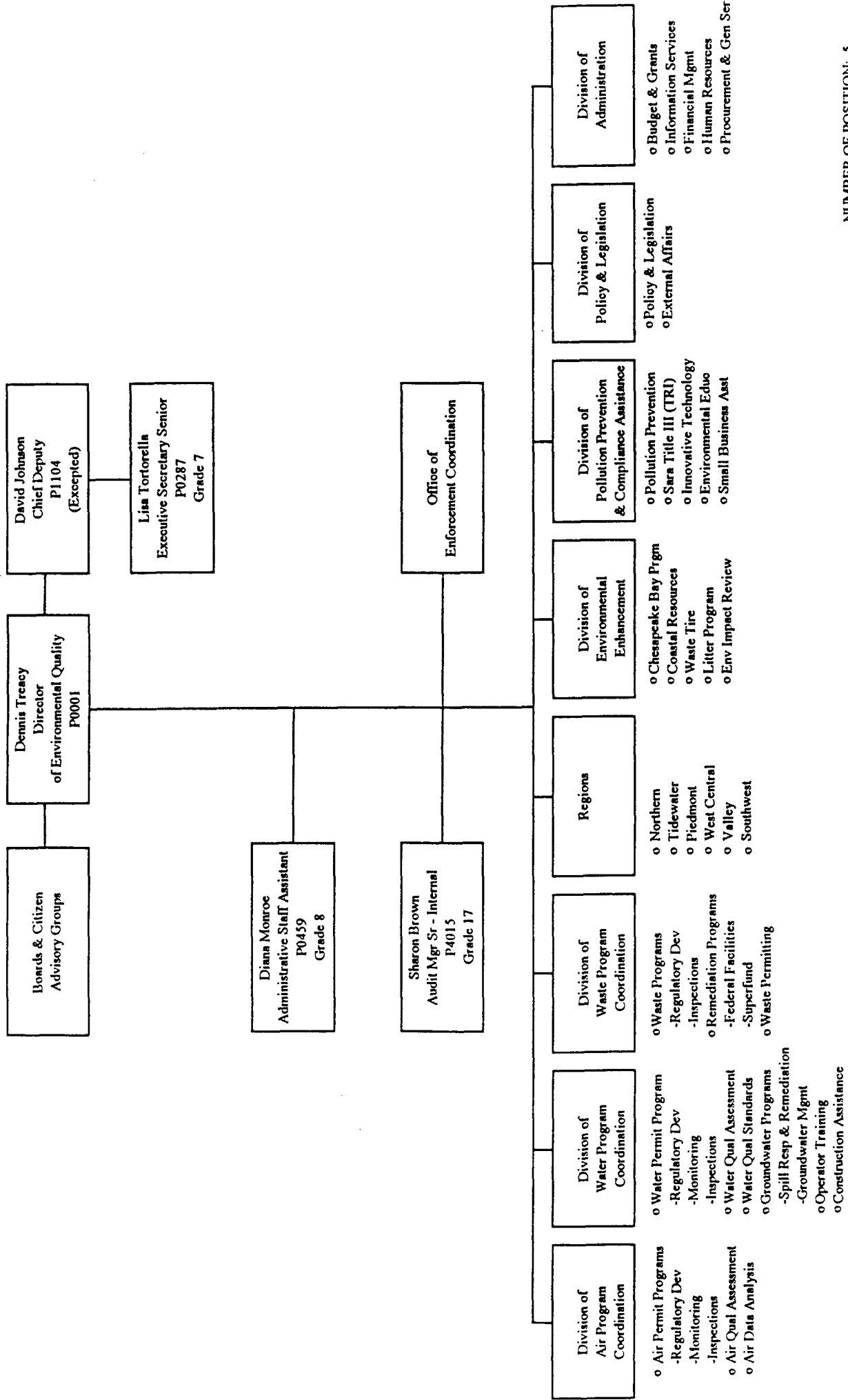
Most environmental data collected by Storage Tank Program staff or contractors working for this program are related to the State Lead and Alternate Water Supply components of this program. A proposed schedule for completing quality assurance documents for the State Lead and Alternate Water Supply components of this program is included as Appendix C.

## **Appendix A**

## **Appendix B**

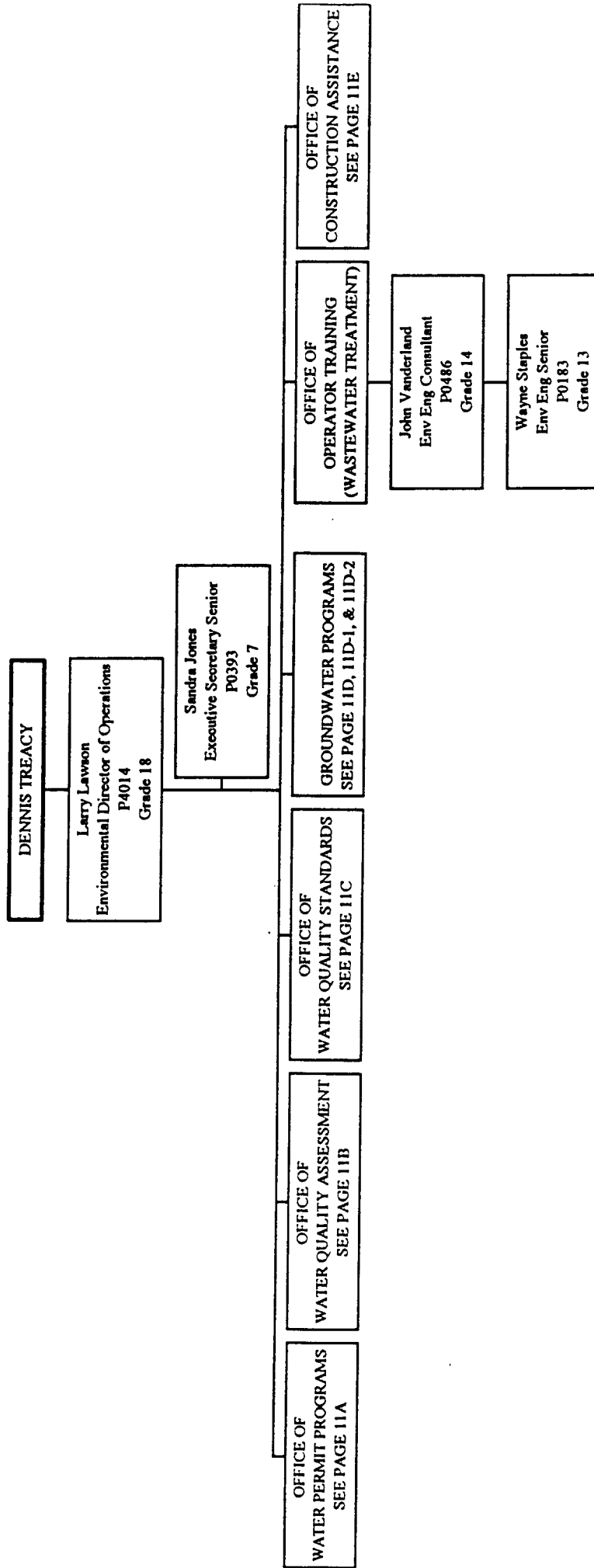


# DEPARTMENT OF ENVIRONMENTAL QUALITY EXECUTIVE MANAGEMENT PAGE 4



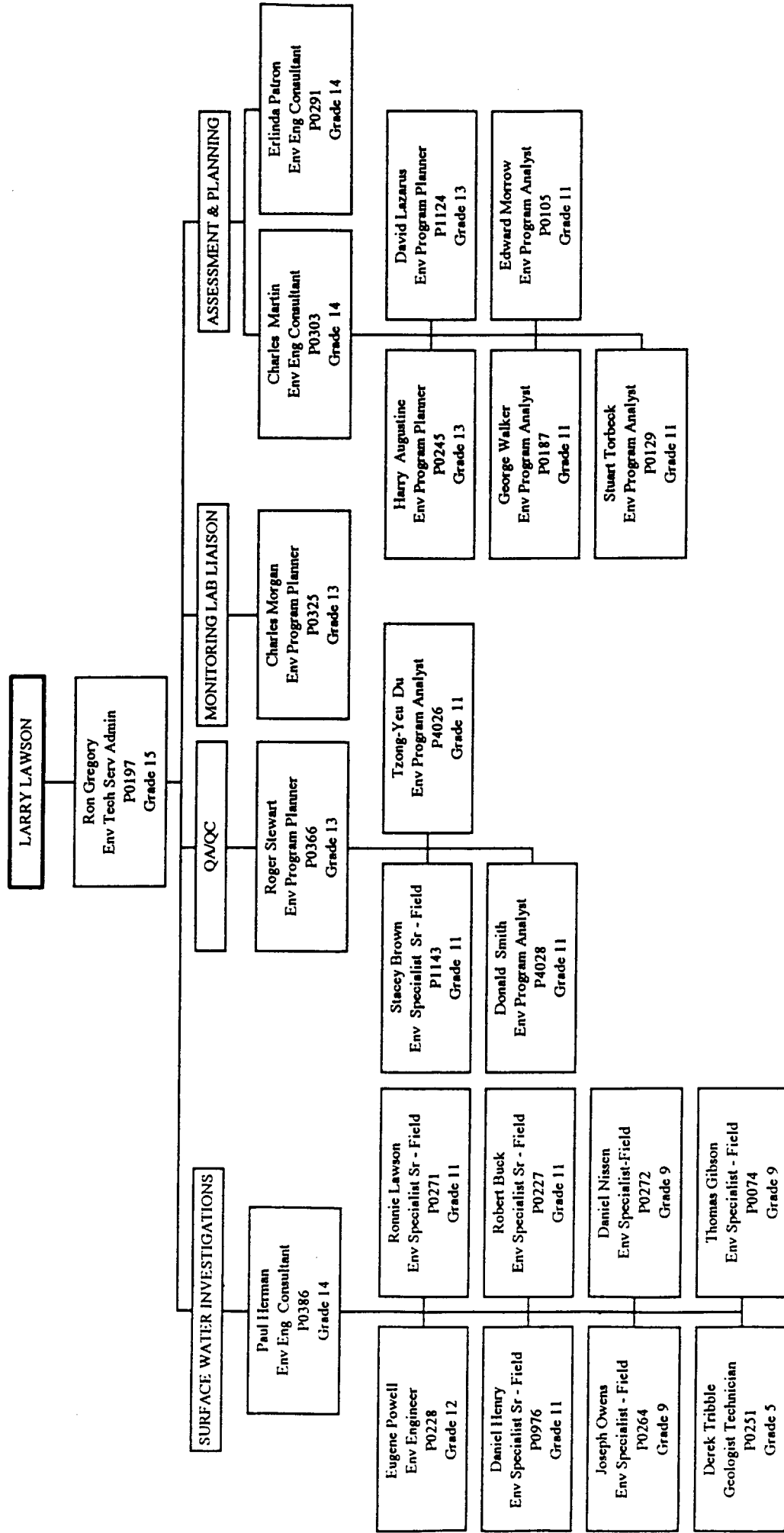
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DIVISION OF WATER PROGRAM COORDINATION  
PAGE 11



# OFFICE OF WATER QUALITY ASSESSMENT

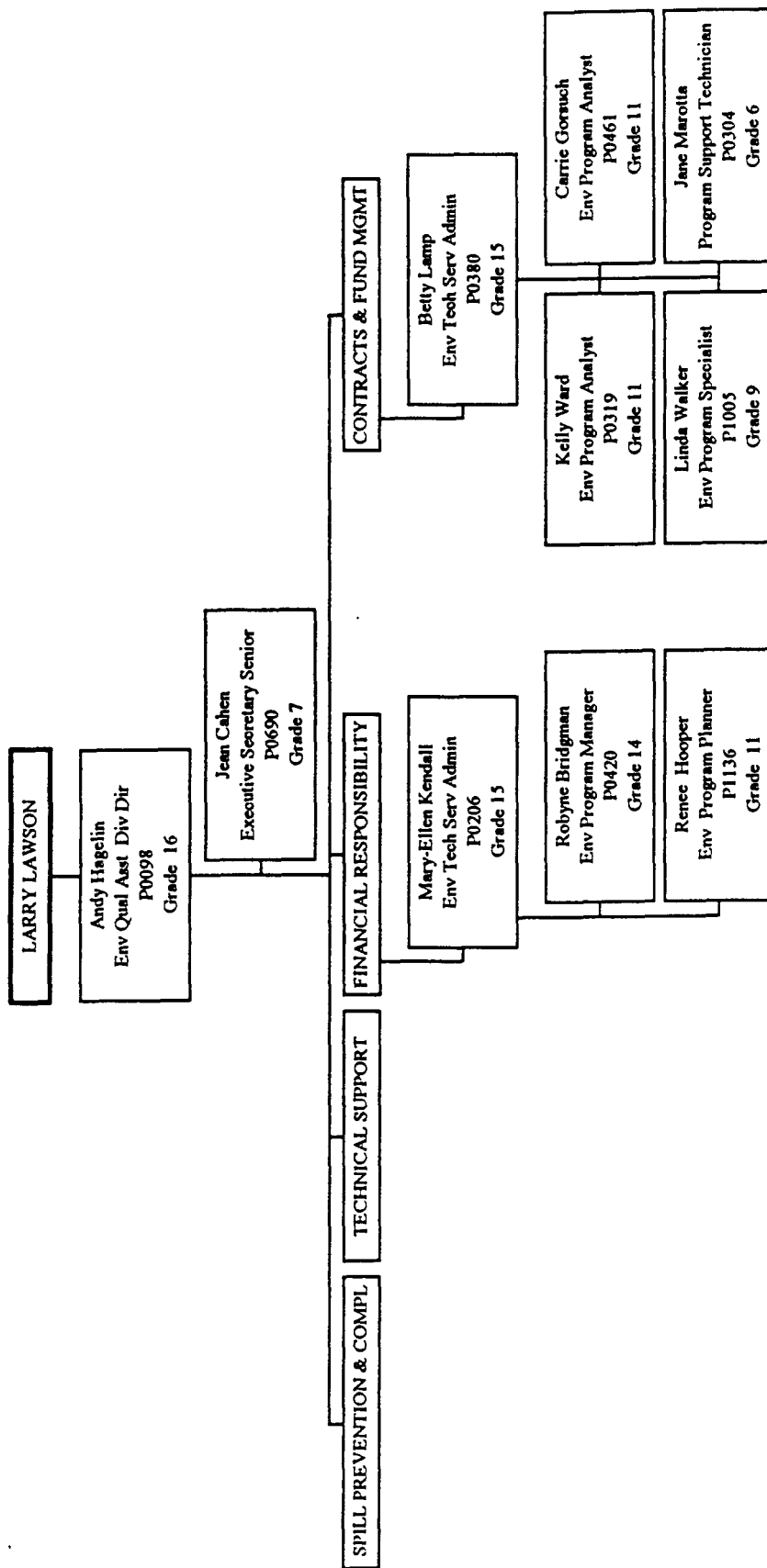
## PAGE 11B



# GROUNDWATER PROGRAMS

## OFFICE OF SPILL RESPONSE & REMEDIATION

### PAGE 11D



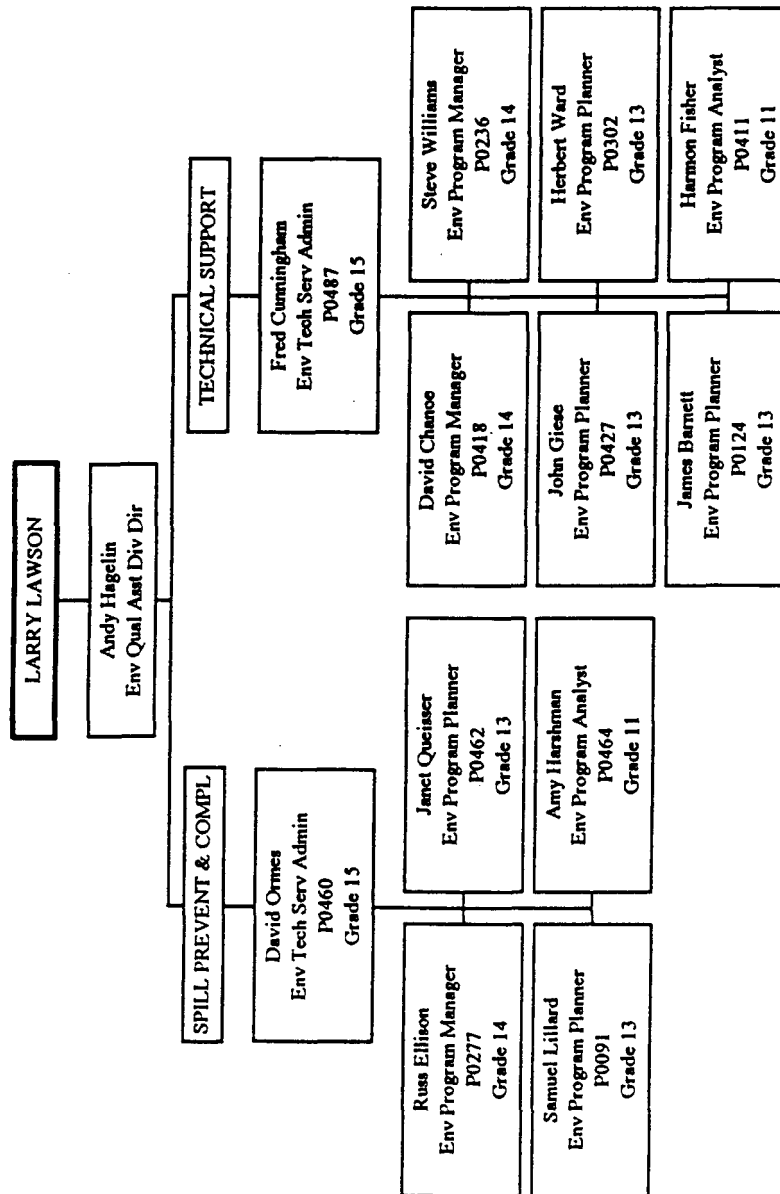
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July 7, 1998

# GROUNDWATER PROGRAMS

## OFFICE OF SPILL RESPONSE & REMEDIATION

### PAGE 11D-1



July 7, 1998

NUMBER OF POSITIONS: 12  
 FILLED: 12  
 VACANT: 0

## Appendix C

## **QUALITY MANAGEMENT PLAN - SCHEDULE**

Storage Tank Program Operational Plan for 1999 .....	November 1999
Storage Tank Program Quality Management Plan .....	March 1999
Quality Assurance Project Plan for the AWS Program (draft) .....	June 1999
Quality Assurance Project Plan for the State Lead Program (draft) .....	August 1999
Quality Assurance Project Plan for the AWS Program .....	October 1999
Storage Tank Program Operational Plan for 2000 .....	November 1999
Quality Assurance Project Plan for the State Lead Program .....	January 2000